

We claim:

1. A probe assembly comprising:

a sensor assembly; and

a housing for mounting the sensor assembly, the

5 housing having a finger mountable portion such that the probe can be worn on a finger by a user, and comprising:

an inner housing; and

an outer housing for holding the inner housing and the sensor assembly,

10 wherein the housing has been sealed such that moisture cannot enter between the inner housing and the outer housing during sterilization of the probe assembly.

15 2. The probe assembly of claim 1, wherein the sensor assembly comprises an array of transducers for ultrasound imaging.

20 3. The probe assembly of claim 1, further comprising a finger cot for wearing on the finger prior to wearing the finger mountable portion on the finger.

25 4. The probe assembly of claim 1, further comprising a flexible circuit having first and second ends, wherein the first end is connected to the sensor assembly, and the second end extends from the housing between the inner housing and the outer housing.

30 5. The probe assembly of claim 4, wherein the flexible circuit wraps approximately half way around the inner housing near the first end.

6. The probe assembly of claim 4, further comprising:
a cable coupled to the second end of the flexible
circuit; and

5 a strain reliever attached to the housing for holding
the second end of the flexible circuit and an end of the cable
connected to it, so as to relieve strain on electrical
connections between the flexible circuit and the cable.

10 7. The probe assembly of claim 4, wherein the second end
is coupled to a sterilizable connector.

8. The probe assembly of claim 7, wherein the
sterilizable connector is mounted on a wrist of a hand that
15 wears the probe.

9. The probe assembly of claim 1, wherein the probe
assembly can be sterilized through immersion in a disinfecting
liquid.

20 10. The probe assembly of claim 1, wherein the probe
assembly can be sterilized through steam autoclaving.

11. A sterilizable connector comprising:

25 a connector housing which has been sealed to prevent
moisture from entering it;

a multi-wire cable which is electrically coupled to a
probe at a first end and coupled to the connector housing at a
second end, said multi-wire cable having its second end sealed
30 within the connector housing to prevent moisture from entering

the sealing between the multi-wire cable and the connector housing; and

a plurality of electrical contacts formed on at least one surface of the sterilizable connector,

5 wherein the sterilizable connector can be connected to a mating connector of a medical equipment, said mating connector having a plurality of mating contacts formed thereon for electrical coupling with the electrical contacts of the sterilizable connector, and

10 wherein the sterilizable connector can be separated from the mating connector to be sterilized.

12. The sterilizable connector of claim 11, wherein the medical equipment comprises an ultrasound platform.

15 13. The sterilizable connector of claim 11, further comprising a flexible circuit board and a backing, wherein the flexible circuit board is at least partially wrapped around said backing, and the backing provides a spring force to keep the
20 electrical contacts in contact with the mating contacts.

14. The sterilizable connector of claim 13, wherein the flexible circuit board includes a plurality of wires formed thereon and the electrical contacts are formed by plating a gold
25 layer over the wires.

15. The sterilizable connector of claim 13, wherein the flexible circuit board is molded to the connector housing so that the sterilizable connector comprises a unitized molded
30 connector.

16. The sterilizable connector of claim 11, wherein an anisotropic conducting contact pad is disposed between the sterilizable connector and the mating connector.

5 17. The connector assembly of claim 16, wherein the anisotropic conducting contact pad comprises a polymer matrix and a plurality of parallel wires embedded in the polymer matrix.

10 18. The connector assembly of claim 17, wherein the wires between each pair of electrical and mating contacts are deformed upon mating between the sterilizable connector and the mating connector.

15 19. The sterilizable connector of claim 11, wherein mating surfaces between the sterilizable connector and the mating connector is V-shaped, wherein the electrical contacts make electrical connection with the mating contacts on each of the two surfaces of the V-shaped mating surfaces.

20 20. The sterilizable connector of claim 19, wherein an anisotropic conducting contact pad is disposed on each mating surface between the sterilizable connector and the mating connector when the connectors are mated so as to form electrical connection.

25 21. The sterilizable connector of claim 19, wherein the V-shaped mating surfaces provide self-centering during mating between the sterilizable connector and the mating connector.

22. The sterilizable connector of claim 20, wherein each anisotropic conducting contact pad comprises a polymer matrix and a plurality of parallel wires embedded in the polymer matrix.

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23. The sterilizable connector of claim 22, wherein the wires between each pair of electrical and mating contacts are deformed upon mating between the sterilizable connector and the mating connector.

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24. A connector assembly comprising:

a sterilizable connector comprising:

a connector housing which has been sealed to prevent moisture from entering it;

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a multi-wire cable which is electrically coupled to a probe at a first end and coupled to the connector housing at a second end, said multi-wire cable having its second end sealed within the connector housing to prevent moisture from entering the sealing between the multi-wire cable and the connector housing; and

20 a plurality of electrical contacts formed on at least one surface of the sterilizable connector;

a standard connector for connecting directly to a standard medical equipment connector of a medical equipment;

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a mating connector for electrically coupling the sterilizable connector to the standard connector, said mating connector having a plurality of mating contacts formed thereon for electrical coupling with the electrical contacts of the sterilizable connector,

wherein the sterilizable connector can be separated from the standard connector and the mating connector to be sterilized.

5 25. The connector assembly of claim 24, wherein the medical equipment comprises an ultrasound platform.

10 26. The connector assembly of claim 24, wherein the sterilizable connector further comprises a flexible circuit board and a backing, wherein the flexible circuit board is at least partially wrapped around said backing, and the backing provides a spring force to keep the electrical contacts in contact with the mating contacts.

15 27. The connector assembly of claim 26, wherein the flexible circuit board includes a plurality of wires formed thereon and the electrical contacts are formed by plating a gold layer over the wires.

20 28. The connector assembly of claim 26, wherein the flexible circuit board is molded to the connector housing so that the sterilizable connector comprises a unitized molded connector.

25 29. The connector assembly of claim 24, wherein a relative motion between the electrical contacts and the mating contacts provide a mechanism for removing contaminants between the contacts, thereby allowing a reliable electrical connection.

30. A medical ultrasound system comprising:

an ultrasound platform that can be used to generate,
process and display ultrasound images;

a probe for taking ultrasound images;

5 a sterilizable connector comprising:

a connector housing which has been sealed to
prevent moisture from entering it;

10 a multi-wire cable which is electrically coupled
to the probe at a first end and coupled to the connector housing
at a second end, said multi-wire cable having its second end
sealed with the connector housing to prevent moisture from
entering the sealing between the multi-wire cable and the
connector housing; and

15 a plurality of electrical contacts formed on at
least one surface of the sterilizable connector;

a standard connector for connecting directly to the
ultrasound platform;

20 a mating connector for electrically coupling the
sterilizable connector to the standard connector, said mating
connector having a plurality of mating contacts formed thereon
for electrical coupling with the electrical contacts of the
sterilizable connector,

25 wherein the sterilizable connector can be separated
from the standard connector and the mating connector, such that
the probe and the sterilizable connector can be sterilized.

31. The system of claim 30, wherein the sterilization is
through one selected from a group consisting of immersion in a
disinfecting liquid and steam autoclaving.

32. The system of claim 30, wherein the probe is a sterilizable finger mounted probe.

33. The system of claim 32, wherein the finger mounted
5 probe includes a sensor array that is rotated with respect to a portion of a finger on which the finger mounted probe is mounted.